IMAGE FUSION

The Art of Digital History

Document Preservation Overview

December 15, 2005

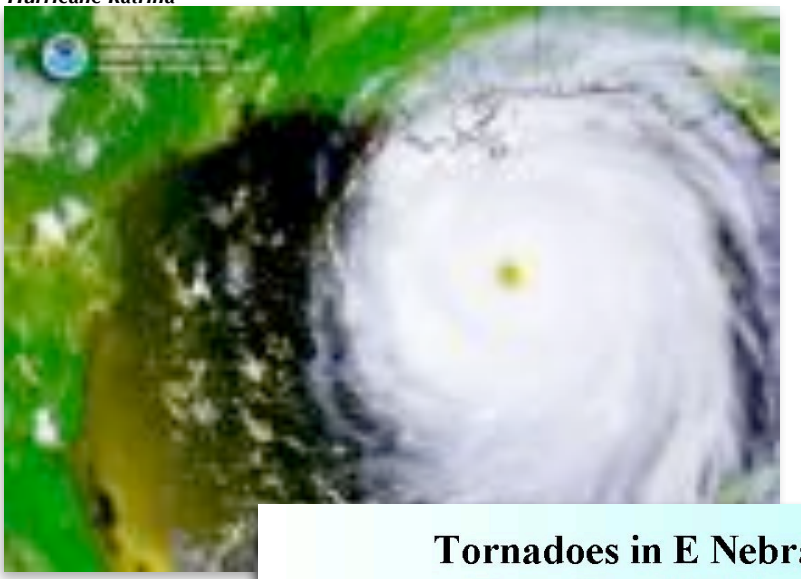
Presented by:
Image Fusion, Cedar Rapids Iowa

Vaughn Halyard - CEO
Chad Rosenbohm - CTO and Founder

Why document preservation?

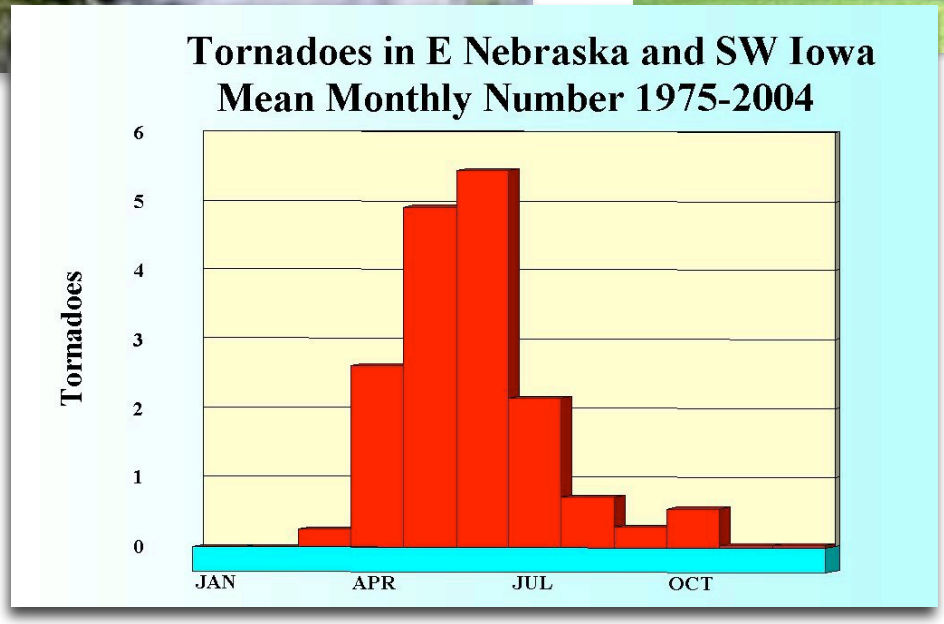
Things happen…

Hurricane Katrina



Source: NOAA

Source: http://www.tempesttours.com/2004tornadophotopage.html

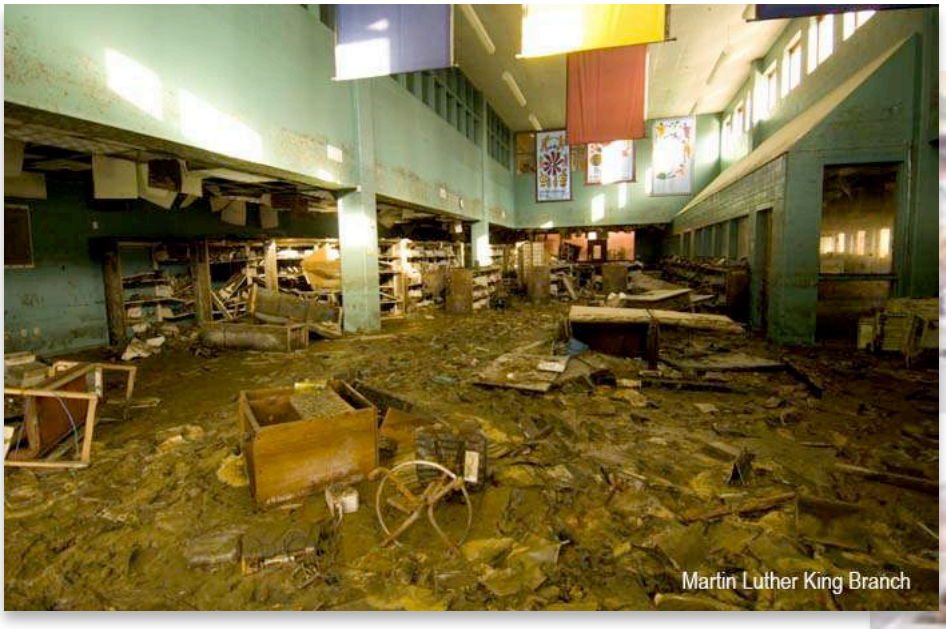


Source: NOAA

Once original documents are gone…
There had better be a backup copy

… there is no logical argument against the value of preservation

Pictures From the Aftermath of Hurricane Katrina



Source: http://nutrias.org/~nopl/info/friends/friends.htm

The lack of a preservation strategy will eventually lead to some form of significant disruption and loss of vital information

… In the aftermath of the storm, it was days to weeks before local, state and federal archivists and volunteers could rescue books, newspaper archives, photographs, genealogies and local historical records from inundated libraries and historical societies in Mississippi and New Orleans…

http://journalism.indiana.edu/news/20051202archives/

At the New Orleans Notarial Archives, which hold some **40 million pages of signed acts** compiled by notaries of new Orleans over **three centuries**, initial efforts to save historical documents were unsuccessful

http://www.boingboing.net/2005/09/10/katina_state_of_nola.html

Close to Home

Municipal organizations in the State of Iowa do not have the resources to implement or follow a uniform preservation strategy

Excerpts from our survey of the District Court Clerks of Iowa:

The majority lack the funds to institute any formal preservation strategy

- some vital paper records are kept under office desks, others in unused jail cells
- many are kept in basements/storerooms/broom closets/ any available space
- some scan to CD, others to microfilm but storage is inconsistent
- few have any extra staff or resources to dedicate to archival programs

Source: ImageFusion Survey of Iowa District Courts

The State of Iowa needs to fund, define, and implement a comprehensive records preservation strategy

Define preservation strategy?

A preservation strategy will identify;

- What to archive
- How to archive it
- How to manage, access and ***retrieve*** information from the archive

Changing Technology

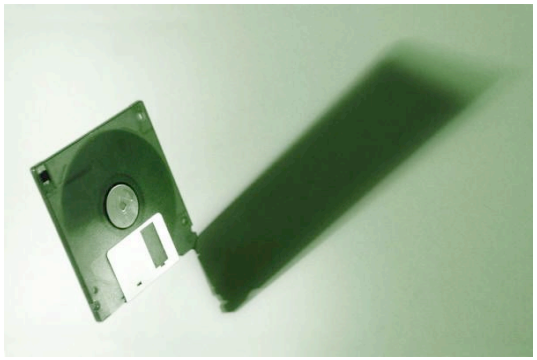
- Media deterioration and technological obsolescence are serious aspects of the preservation challenge

> *We also see scientists at the Planetary Data Systems division of Jet Propulsion Laboratory (JPL) lamenting the loss of data from several space missions because nearly 10 to 20 percent of the tapes have errors in them. They point out that collecting data was seen as a priority, and not much thought was given to saving it for future.*
>
> http://www.historians.org/Perspectives/issues/1998/9804/9804FIL2.CFM

- Technological advances will make current CD and DVD discs obsolete within the next 2 to 4 years

- If the software currently used to interpret the data on optical discs becomes unavailable, a migration or emulation technology will be needed to access the data

Opinion: NATIONAL INSTITUTE FOR STANDARDS AND TECHNOLOGY (NIST)
Changing Technology


NIST Notes that CDs are considered an "endangered" standard:

http://www.itl.nist.gov/div895/gipwg/GIPWG-Dec16.ppt

Future

- It is essential that information can be read by future generations

Imagine if the only collection of your favorite music was stored on 8-track tapes…

… You couldn't play it today because there are no machines and the information on the tapes would have peeled off.

- It is vital to have a preservation strategy in place that guarantees the sustainability of a collection

- Digital media used as recently as 10 years ago is incompatible with most of today's systems. (*e.g. $5^{1/2}$ inch floppy disks*)

- Although convenient, CD-R and DVD-R media is volatile and can be rendered unreadable with a unfortunately placed scratch

Best Practices
Preservation

The question today is… “What is true preservation?”

NATIONAL INSTITUTE FOR STANDARDS AND TECHNOLOGY (NIST)

NIST and several leaders in preservation have conducted studies, along with the government to help answer this question

Image Fusion follows a philosophy based on a combination of current best practices

Processes
PRESERVATION

Images can be scanned and converted into, and made searchable in **digital** media formats such as;

- PDF, TIFF, EPS, JPG, IFS (Image Fusion secured document image)

Once in these formats, they become transportable on **physical digital media** such as:

- DVD's
- Intranets and local networks
- Hosted on the world wide web

The high resolution scans should then be backed up onto current **microfilm**

Opinions
Northeast Document Conservation Center

A good preservationist's view on the practicality of microfilm preservation, even with digital access considered with its advantages. Note that the author highlights that microfilm and its archival process is "governed by carefully crafted national standards." CDs and DVDs have no such uniform manufacturer testing protocol nor certification

- http://www.nedcc.org/plam3/tleaf51.htm

Opinions
KODAK RESEARCH AND DEVELOPMENT

Kodak claims a 500 year Life Expectancy (LE) for microfilm. Also, contains implied lifetime of other digital media. Kodak is the leading vendor of microfilm and archival quality optical media

- http://www.kodak.com/US/en/corp/researchDevelopment/productFeatures/scanPB2003.shtml

Government Applications
U.S. Census

Unlike digital media, information captured on microfilm is in the "peoples" language. This guarantees access by humans, now and in the distant future, without reliance on an external technology or migration. By combining the unique archival storage strengths of film with the access capabilities provided by a digital imaging system, we satisfy all known document lifecycle requirements. Microfilm is readily converted to electronic data for network distribution using the technology of the day.

- http://www.datarchiving.com/article_letters.htm

Best Practices
Image Fusion

- We currently employ all manner of current digital media storage that enable temporary, random, instant and non-linear access
  (CD, Hard Drives, USB, DVD, CD-R,DVD-R, etc…)

- None of the above media are appropriate for long term (longer than 3 years) preservation.

- Current Best Practices dictate that digital content be archived to **Microfilm**

- The most robust, usable and profitable solutions employ a combination of;
  1. Digital media storage and retrieval for accessibility
  2. Microfilm for long term archival

- The subsequent microfilm archives should be stored in climate and environmentally controlled locations

Conclusions

- For current and dynamic access, digital media is the preferred format
  - (CD, Hard Drives, USB, DVD, CDR,DVDR)
- Currently microfilm is the preferred medium for long term archival and preservation (more than 3 years)
- Image Fusion strongly recommends that the State of Iowa fund and implement a detailed and statewide document archival and preservation strategy

Appendix

Image Fusion : Background

We Are…

- ImageFusion is a digital media support and publishing company
- We help clients such preserve, digitize, reformat and leverage intellectual property investments
- Once documents are converted to digital content, ImageFusion can then produce higher quality microfilm for long-term preservation requirements
  - *(up to 500 years)*

We are located in Cedar Rapids Iowa and offer the following products and services

- Archive Evaluation and Advisory
- High Resolution, Large and Multi-format Scanning
- Custom Search
- Archive Management
- Document Capture
- Document Presentation
- Document Storage
- Document Access
- Custom User Applications and Interfaces
- Subscription and Licensing
- Management of Traffic partnerships

Imagefusion 319.261.0719 **info@imagefusion.net**

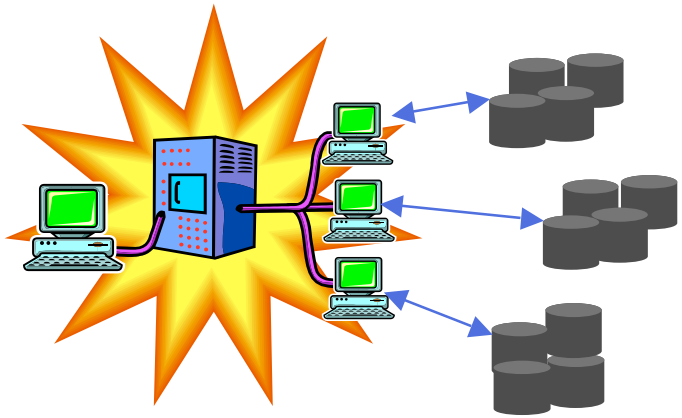
What we do… advise and manage the archive process

This information is then stored and archived on disk and made available in our system where a user can;

- Search over 1 billion documents in under 2 seconds
- Search on every word printed on a page
- Search image meta-data and custom index fields
- Archived onto microfilm making for a secure, historically accurate archive with longevity

The system supports hundreds of simultaneous searches per server.

These are potential subscriber, reader, user and researcher searches



Result

Entire archives become searchable, including:

- Rulings
- Judgments
- State, local and municipal data
- Drawings, plats and plans
- Photos, Birth, Marriage, Adoption, Death, Transfer and other notices
- Text, ads, obituaries, classifieds, captions and other text and information on a page becomes searchable.

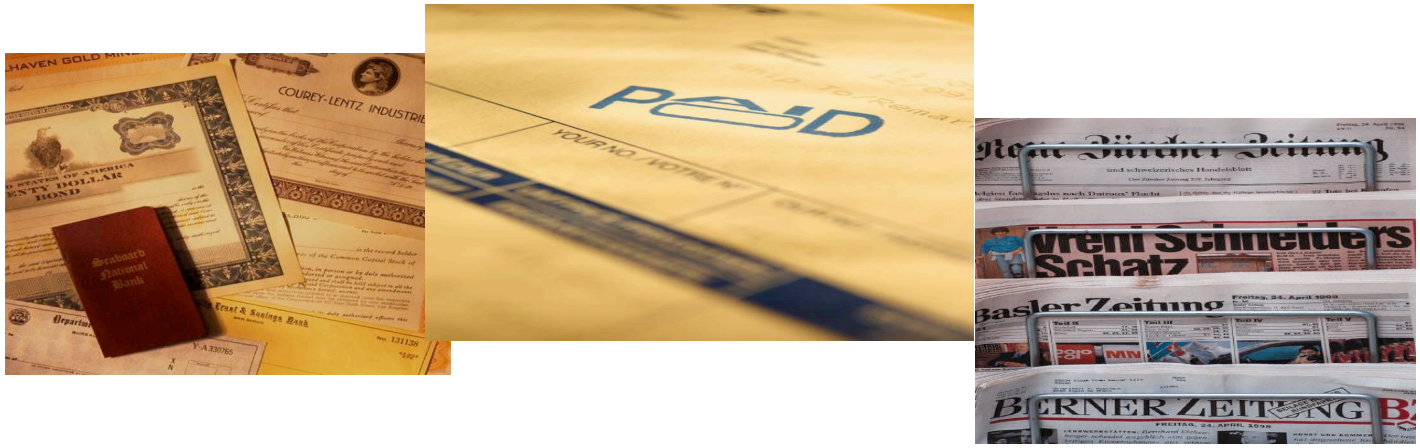
The search delivers both the image of the page and associated highlighted text.

User can search historical data with a keystroke, mouse click or touchpad.

The end result is highly usable and generates outstanding results

DOCUMENT CAPTURE

We scan your documents, small to large format, and enhance the images with our exclusive DataCorrect™ software application. For documents already been stored on microfilm, using our optical character recognition (OCR) technology we can convert your film to digital and enhance the document quality in the process.



Be they important documents, Newspapers or public records,
ImageFusion has the right answer for true preservation needs.

DOCUMENT PRESENTATION

- Once documents are converted to digital content, ImageFusion can then produce higher quality microfilm for your long-term preservation requirements (up to 500 years)

- By starting with digital documents, it is possible to confirm documents capture quality, enhance the captured document and create a much higher quality film product in significantly less time while saving you money .

- With high quality film, you can easily reconvert documents to digital content in the event of computer storage corruption. Working together, digital storage and microfilm provide the most secure preservation process available.

Principal Bios

vaughn halyard

Image Fusion
CEO

Story Lounge
Founder .
Managing Partner

Image Fusion ceo and storylounge founder Vaughn Halyard conceived and launched “the lounge” to inspire and support creative collaboration and story telling. The lounge continues this support by enabling the production of the stories into cinema, music and games for consumer entertainment. The Lounge empowers creative ventures with empirical research, analysis, strategy, financial and operational excellence. The lounge is expert in delivering creativity, development, deployment and scalability

Vaughn has excelled creatively, strategically and operationally. As a Walt Disney Studios Senior Vice President of Strategy and Buena Vista Music Group Senior VP of Urban A&R for Hollywood Records, he supported and advised numerous Disney business units such as Disney R&D, Disney Imagineering, Buena Vista Studios, Disney Interactive, ESPN/EXPN X-Games, Miramax/Dimension Films, Disney Stores, Disney Channel, Corporate Strategic Planning, Disney World and Disneyland.

Today, Halyard and the Lounge are producing two feature film projects. He also provides strategic consulting services for selected media oriented business clients including Cedar Graphics, InterTrust and Evercore Partners a strategic and financial advisor to the Story Lounge.

Prior to joining Disney, he led entertainment and media research and consulting for technology think tank the META Group where his clients included BMG, ESPN/EXPN, Universal Music, JP Morgan, IBM, Time Warner, Nike, Nike-ACG, Kodak, Kohlberg Kravis Roberts, and Institutional Venture Partners/Redpoint Ventures.

As an executive and producer, he has worked on numerous blockbuster projects such as JUNGLE FEVER, MENACE TO SOCIETY, SAVE THE LAST DANCE 1&2, MISSION IMPOSSIBLE 2, PRINCESS DIARIES, BRINGING DOWN THE HOUSE, REMEMBER THE TITANS, THAT’S SO RAVEN and BAD BOYS and interactive games including TRON 2.0..

While at META Group his team partnered with Disney Internet Group to conceive,build and deploy the high traffic and highly convergent EXPN channel for ESPN in support of the X-Games Brand.

Creatively, he has played drums, keyboards and produced with Jimmy “Jam” and Terry Lewis, Janet Jackson, has two Grammy Awards and an Oscar nomination for producing with Stevie Wonder, was a senior Director of A&R and Staff Producer for Sony Music and continues to produce and consult for Disney/Buena Vista Games .

While at New England Digital, a pioneering digital audio and media company, many utilized Vaughn’s extensive technical and creative background in Digital Signal Processing (DSP) and early Digital Rights Management (DRM) His diverse collection of clients included Sting, Lucas Film, Gannett Radio, Pat Metheny and U.S. Naval Acoustic Research. He began his professional life at IBM as a Marketing Representative

Vaughn holds a B.A. from Dartmouth College where he continues as a Research Fellow and lecturer at Jon Appleton’s Dartmouth’s Electro-Acoustic Media Institute. Vaughn sits on the Board of Directors for The Science Station and the Jane Boyd Community House and is on the advisory board of the Entrepreneurial Development Center.

chad rosenbohm

Image Fusion
Founder - CTO

Chad Rosenbohm has successfully run his own consultancy business, Net Consultants Inc, for 7 years in the field of document digitization and software development and has developed the proprietary technology to enable digitization faster than other available technology. In terms of cost per image for converting paper document to digital image he has devised a solution that produces superior results for about the cost of existing systems.

After years designing multi-million dollar image processing systems for Ancestry.com, and Heritage Microfilm and the Mexican National Library, Image Fusion founder Chad Rosenbohm decided there had to be a better way. The result is **FrameworkGrid™**, a low cost, high quality solution to digital image capture.

He has worked with several companies since 1998. One of those companies was a pioneer in large-format document digitization. Over a 4 year consultancy he was able to architect a software solution that now enables that firm to process 3.5 million images a month and host those images on an eCommerce website application, which currently generates in excess of six figures monthly.

In Image Fusion, Chad has completely reworked and perfected the software improved performance and resolved many quality control issues plaguing the industry. The result of the underpinnings of the image Fusion engine.

He has taken great care to create an entirely unique and proprietary body of work.

Chad remains a highly valued and sought after computer scientist.

The founding and further funding of Image Fusion has allowed Chad to focus on the tremendous growth opportunities inherent in both the technology and the business applicability of Image Fusion.